

**Electro-Voice®**

a MARK IV company

# INC-8A INC-8AT4 INC-8AT8

## Wide-Range Coaxial Speaker

### SPECIFICATIONS

**Frequency Response:**  
85-18,000 Hz  $\pm$  5dB

(See Figure 1)

**Power Handling:**  
15 watts (EIA RS-426A)

**Impedance:**

Nominal:

8 ohms

Minimum:

6 ohms (8 kHz)

**Sound Pressure Level at 1 Meter, 1 Watt Input, 200-4,000Hz Average:**  
96 dB

**Voice-Coil Diameter:**  
2.54 cm (1.00 in.)

**Magnet Weight:**  
0.32 kg (0.72 lb)

**Magnet Material:**  
Barium ferrite

**Flux Density:**

1.2 Tesla

**Speaker Frame:**  
22 ga. stamped steel

**Color, Frame:**  
Black

**Dimensions, INC-8 series,**  
**Diameter:**

20.6 cm (8.1 in.)

**Height:**  
7.1 cm (2.8 in.)

**Net Weight,**

**INC-8A:**

1.3 kg (2.8 lbs)

**INC-8A4T:**

1.4 kg (3.1 lbs)

**INC-8AT:**

1.8 kg (4.0 lbs)

**Shipping Weight,**  
**INC-8A:**

1.5 kg (3.3 lbs)

### INC-8A4T:

1.6 kg (3.6 lbs)

### INC-8AT:

2.0 kg (4.5 lbs)

**Transformer Input (INC-8A4T and INC-8AT):**

25-, 70.7-, or 100-volt line

### DESCRIPTION

The Electro-Voice INC-8A, INC-8A4T and INC-8AT loudspeaker systems are high quality 8-inch, full-range coaxial loudspeakers for distributed sound systems. The dual magnet construction allows each speaker to be structurally, magnetically, electrically and mechanically independent of the other. The INC-8 series utilize a single section crossover network, centered at 3kHz, and providing 6dB of attenuation for the tweeter. They provide wide dispersion, high-efficiency, ease of installation and wide range reproduction of music or voice.

To insure long-term reliability in installations the INC-8 series are designed to handle 15 watts continuous power (60 watts peak) of shaped white noise signal for eight hours per EIA Standard RS-426A.

The INC-8A4T is provided with a transformer that offers a selection of 0.5, 1, 2 and 4W, delivered to the loudspeaker system.

The INC-8AT is provided with a transformer that offers a selection of 1, 2, 4 and 8W, delivered to the loudspeaker system.

### DIRECTIONAL PERFORMANCE

The directional characteristics of the INC-8 in a 1.5-cubic-foot vented enclosure were measured by running a set of polar responses in EV's large anechoic chamber. The test

signal was  $1/3$ -octave-band-limited pseudo-random pink noise centered at the ISO standard frequencies indicated in Figure 3.

Additional typical data is provided in Figures 4 and 5 which indicate 6-dB-down beamwidth versus frequency and directivity factor, respectively, for an INC-8A in the test enclosure.

### POWER HANDLING TEST

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real life conditions. First, we use a random noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than typical actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long-term average" or "continuous" level — which our ears interpret as loudness — but also short-duration peaks which are many times higher than the average, just like actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine-wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for eight hours, adding another extra measure of reliability.

Specifically, the INC-8A is designed to withstand the power test described in EIA Standard RS-426A. The EIA test spectrum is applied for eight hours. To obtain the

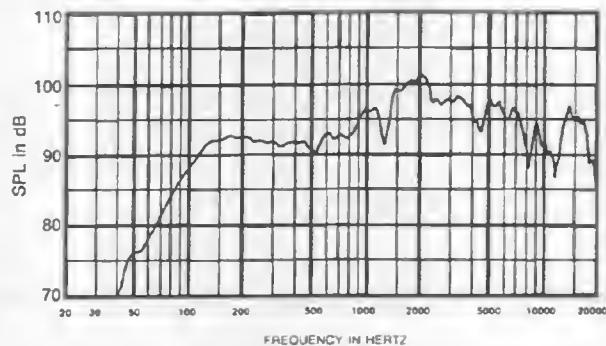


FIGURE 1 — Axial Frequency Response 1 Watt/1 Meter

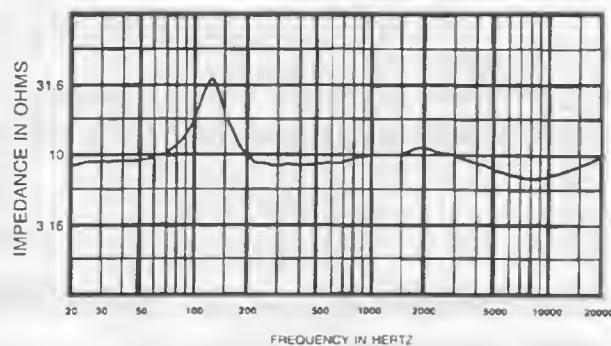


FIGURE 2 — Input Impedance vs. Frequency

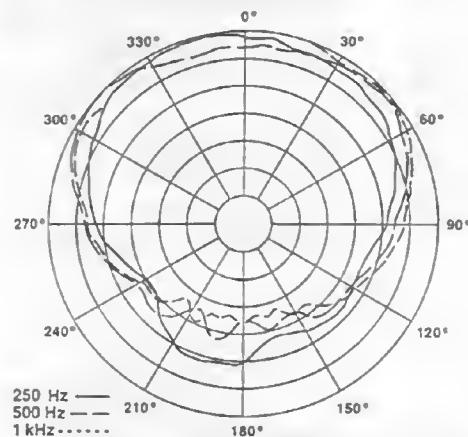


FIGURE 3 — INC-8A Polar Response in 1.5 ft<sup>3</sup>  
Sealed Box 4V RMS of 1/3-Octave-Band-Limited  
Noise in Anechoic Environment, 10 Feet on Axis  
(5 dB per division)

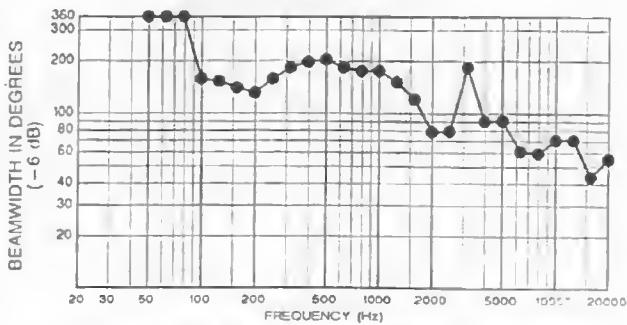
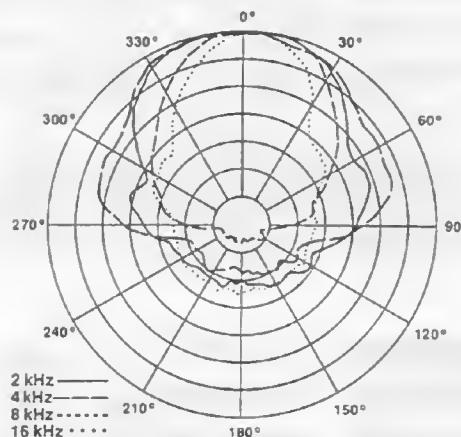


FIGURE 4 — INC-8A Beamwidth vs. Frequency  
in 1.5 ft<sup>3</sup> Sealed Box

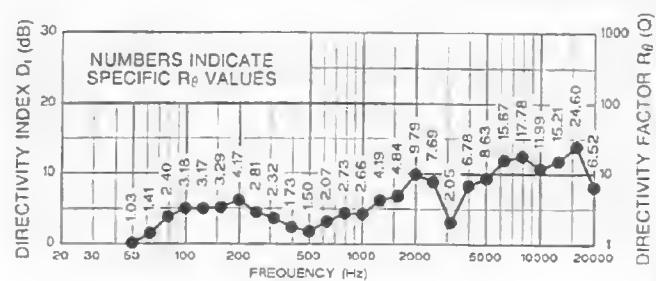


FIGURE 5 — INC-8A Directivity Factor and  
Directivity Index vs. Frequency in a 1.5 ft<sup>3</sup> Sealed Box

LINE VOLTAGE	25V	70.7V	100V
	0.5 W	0.5 W	1.0 W
	1.0 W	1.0 W	2.0 W
	2.0 W	2.0 W	4.0 W
	4.0 W	4.0 W	—

TABLE 1 — Rating of Secondary Taps

spectrum, the output of a white noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage-bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1200 Hz with a 3-dB-per-octave slope above 1200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 15 watts into the EIA equivalent impedance (10.0 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 60 watts peak (20.0 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

#### RECOMMENDED CONNECTIONS

The INC-8A is a nominal 8-ohm impedance loudspeaker with a 15-watt input capability. However, it is also available with transformer inputs for both low- and high-power applications. The INC-8AT4 utilizes the TM4 4-watt, 25/70.7/100-volt universal line matching transformer with power taps ranging from 0.5 to 4 watts. The power taps are indicated in Table 1. The INC-8AT8 utilizes the TM8 8-watt, 70-vOH transformer with power taps ranging from 1 to 8 watts.

#### ARCHITECT'S AND

#### ENGINEER'S SPECIFICATIONS

#### INC-8 SERIES COAXIAL LOUDSPEAKERS

The loudspeaker shall be a coaxial type with a 8-inch low-frequency cone and a high-temperature voice coil assembly coaxially mounted with a wide dispersion cone tweeter. The coaxial loudspeaker shall meet the following criteria. EIA power rating shall be 15 watts of band limited pink noise (85 Hz to 18 kHz, 6 dB crest factor). Frequency response, uniform from 85 Hz to 18 kHz. Pressure sensitivity, 96 dB SPL at 1 meter (94 dB at 4 feet) on axis with one watt of band-limited pink noise from 500 Hz to 3 kHz (ref. 20 uPa). Minimum impedance, 6.0 ohms. The loudspeaker shall be 8.13 in (20.65 cm) in diameter and 1 in (2.54 cm) deep and shall weigh 10 lbs (4.5 kg).

The coaxial loudspeakers shall be the Electro-Voice models INC-8A, INC-8AT with 4W transformer and INC-8AT with 8W transformer.

#### WARRANTY (Limited)

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been

made to the product by anyone other than Electro-Voice or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from

Electro-Voice at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831) and/or Electro-Voice West, at 8234 Doe Avenue, Visalia, CA 93291 (209/651-7777). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you.

**Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**Electro-Voice Speakers and Speaker Systems** are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Electro-Voice active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change without notice.